Auto-Mate
Maxi-Mate

SWING GATE OPERATORS

INSTALLATION MANUAL

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CENTURION
THE AUTOMATIC CHOICE

Swing Gate Installation Manual

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Introduction

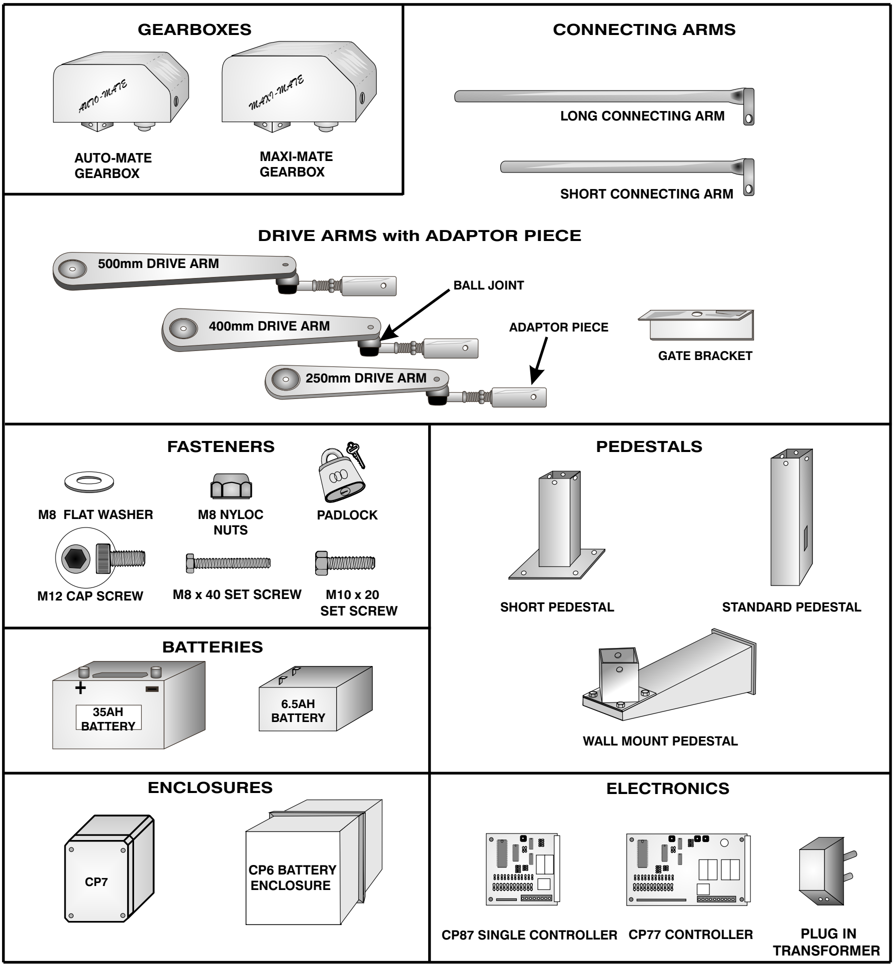
A CENTURION GATE AUTOMATION system is a quality product designed to give many years of trouble free service.

This MANUAL has been compiled to assist you, the customer, with a trouble free installation.

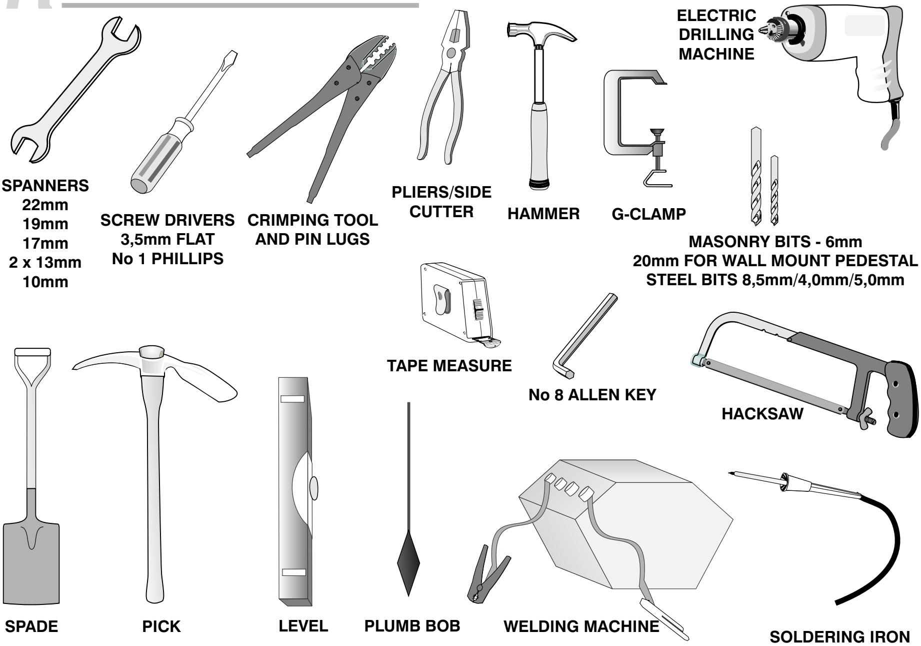
PLEASE READ THE INSTRUCTIONS CAREFULLY

Basic Kit

The swing gate kit comprises of components shown in the identification list below.

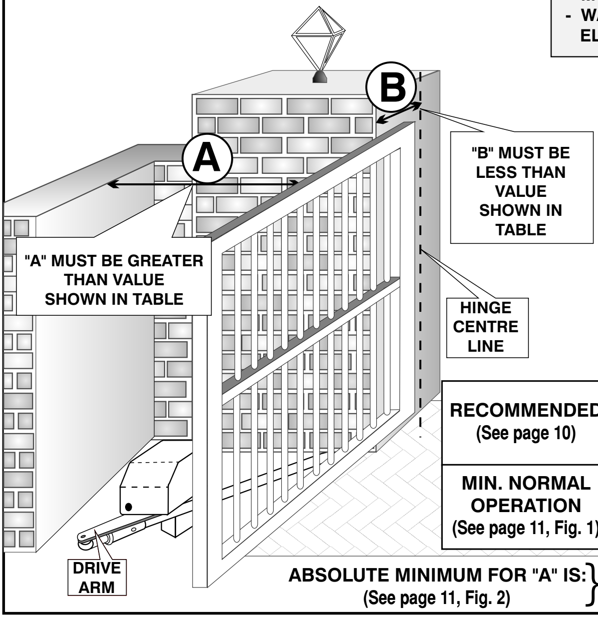


Recommended Tools



Critical Dimensions

CHECK:
- DIMENSIONS
- MUNICIPAL BYLAWS
- WATER, SEWERAGE, ELECTRICAL CABLES



CRITICAL DIMENSIONS

	STANDARD DRIVE ARM LENGTHS AVAILABLE					
	250mm FOR: Limited space or outward opening applications		400mm FOR: Standard double Auto-Mate kits		500mm FOR: Standard Maxi-Mate or single Auto-Mate kits	
	A	B	A	B	A	B
RECOMMENDED (See page 10)	400	240	635	560	790	760
MIN. NORMAL OPERATION (See page 11, Fig. 1)	315	150	430	365	530	515

ABSOLUTE MINIMUM FOR "A" IS: (See page 11, Fig. 2)
- 220mm FOR AUTO-MATE
- 260mm FOR MAXI-MATE

Cable Requirements

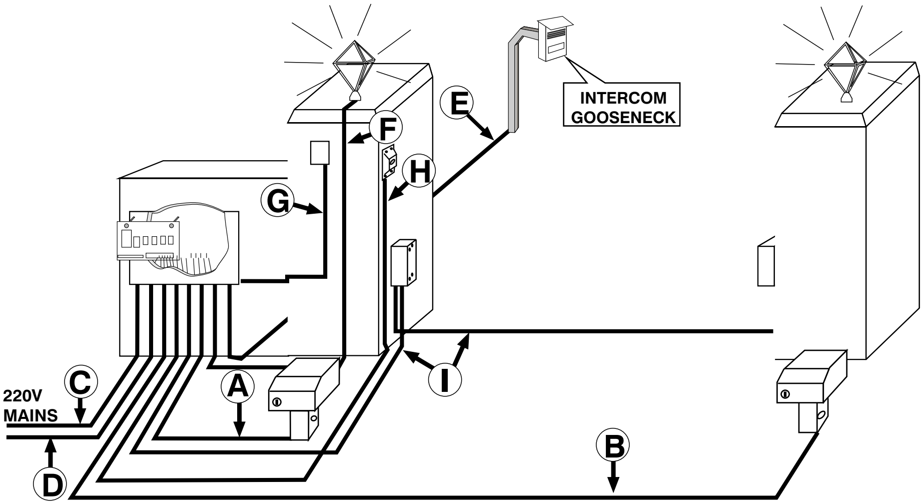


TABLE 2 - CABLE REQUIREMENTS

NO	DESCRIPTION	NO OF CORES	SIZE mm^2	OPTIONAL	* CABLE TYPE
A	MASTER MOTOR (MOTOR) and	3	2,5		G.P. IN CONDUIT OR NORSK
	MASTER MOTOR (LIMIT SWITCH)	3	0,2		INTERCOM/CABTYRE/ G.P. IN CONDUIT
B	SLAVE MOTOR (MOTOR) and	3	2,5	X	G.P. IN CONDUIT OR NORSK
	SLAVE MOTOR (LIMIT SWITCH)	3	0,2	X	INTERCOM/CABTYRE/ G.P. IN CONDUIT
‡ C	EITHER: 220V AC SUPPLY CABLE	2 + E	0,5		NORSK IN CONDUIT OR S.W.A.
	OR: 15V AC TRANSFORMER SECONDARY	2 + E	1,5		3 CORE CABTYRE IN CONDUIT
‡ D	INTERCOM IN HOUSE & STATUS SIGNALLING	n1 + 6	0,2		INTERCOM IN CONDUIT
E	INTERCOM-CONTROL BOX TO GOOSENECK	n 2	0,2		INTERCOM IN CONDUIT
F	PILLAR LIGHTS	2 + E	0,5	X	NORSK IN CONDUIT OR S.W.A.
G	REMOTE RECEIVER	3	0,2	X	INTERCOM/CABTYRE/ G.P. IN CONDUIT
H	PEDESTRIAN KEYSWITCH	2	0,2	X	INTERCOM/CABTYRE/ G.P. IN CONDUIT
I	INFRA RED BEAM	3	0,2	X	INTERCOM/CABTYRE/ G.P. IN CONDUIT
J	SOLENOID STRIKE (not shown)	2	0,5	X	CABTYRE OR G.P. IN CONDUIT
K	SOLAR PANEL (not shown)	2	1,5	X	CABTYRE OR G.P. IN CONDUIT

* = CABLE TYPE IS MINIMUM RECOMMENDATION

S.W.A. = STEEL WIRE ARMOURED

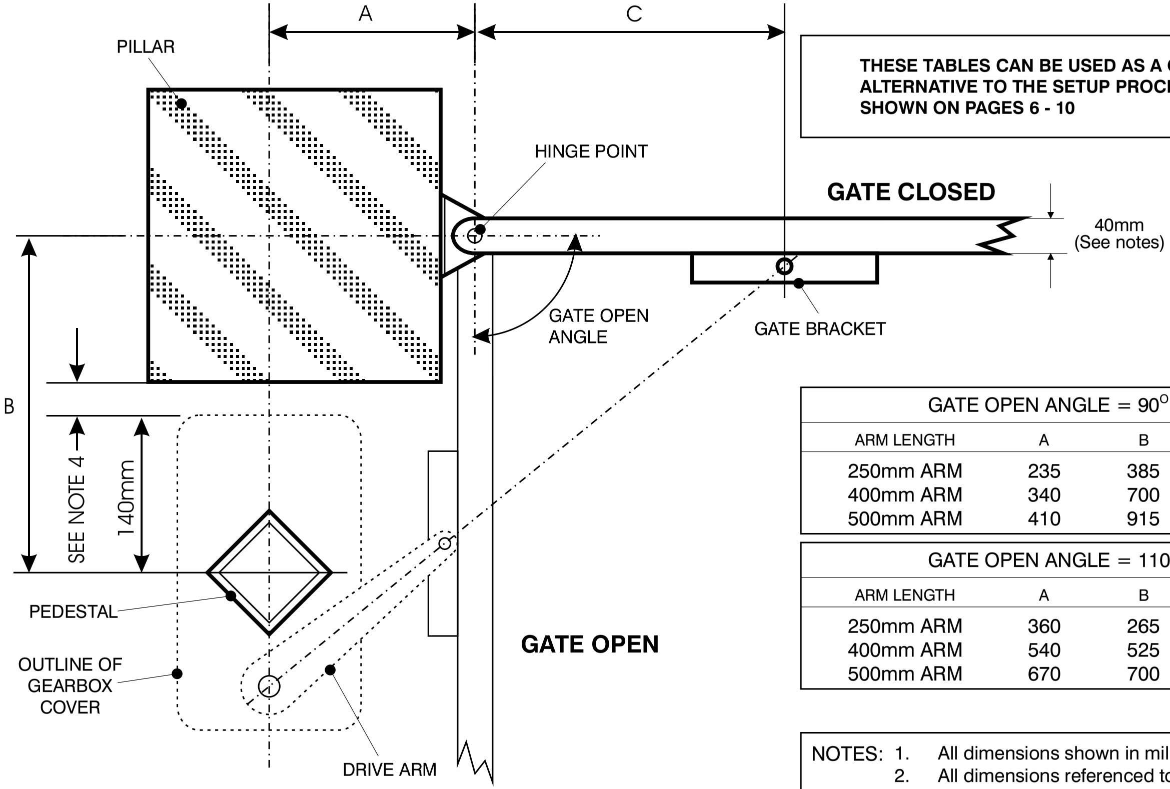
G.P. = GENERAL PURPOSE HOUSE WIRING OR PANEL FLEX

n1 = CONSULT INTERCOM SUPPLIER FOR REQUIRED NO. OF CORES

n2 = CONSULT INTERCOM SUPPLIER FOR REQUIRED NO. OF CORES

‡ = FOR OPTIMUM LIGHTNING PROTECTION USE SCREENED CABLE EARTHED AT BOTH ENDS

Simplified Pedestal Mounting Position



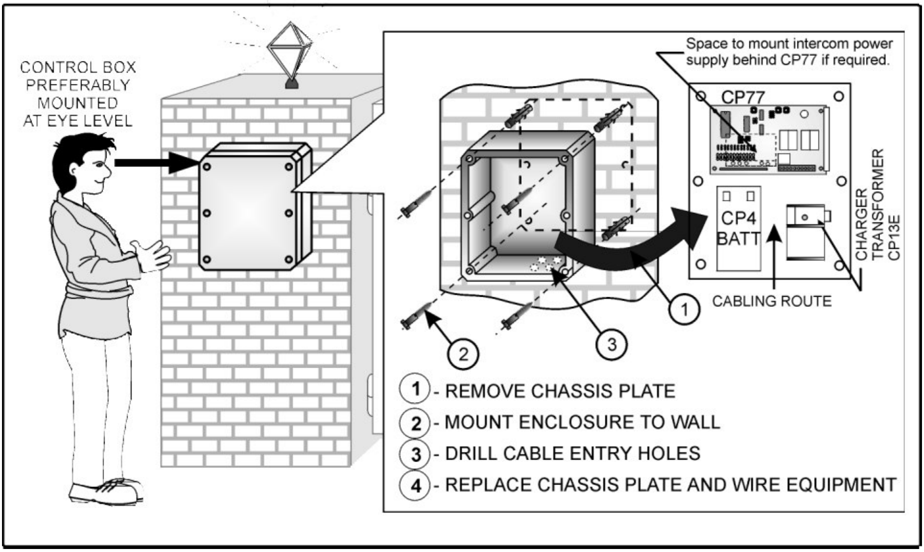
THESE TABLES CAN BE USED AS A QUICK ALTERNATIVE TO THE SETUP PROCEDURES SHOWN ON PAGES 6 - 10

GATE OPEN ANGLE = 90°			
ARM LENGTH	A	B	C
250mm ARM	235	385	354
400mm ARM	340	700	566
500mm ARM	410	915	707

GATE OPEN ANGLE = 110°			
ARM LENGTH	A	B	C
250mm ARM	360	265	305
400mm ARM	540	525	488
500mm ARM	670	700	610

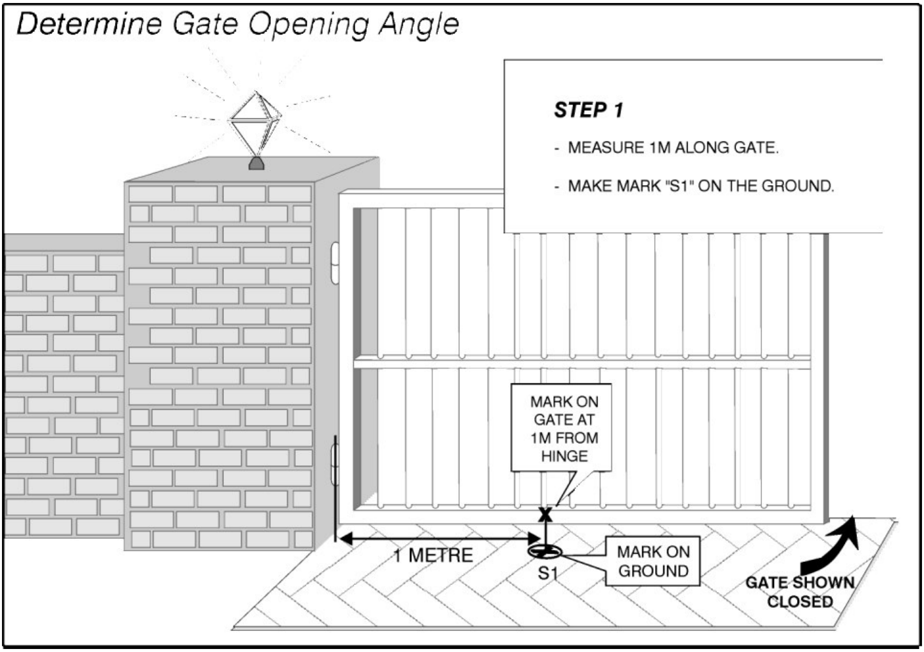
NOTES:
1. All dimensions shown in millimetres.
2. All dimensions referenced to hinge point.
3. Gate thickness assumed to be 40mm.
4. Distance depends on pillar size. Check carefully before installation.

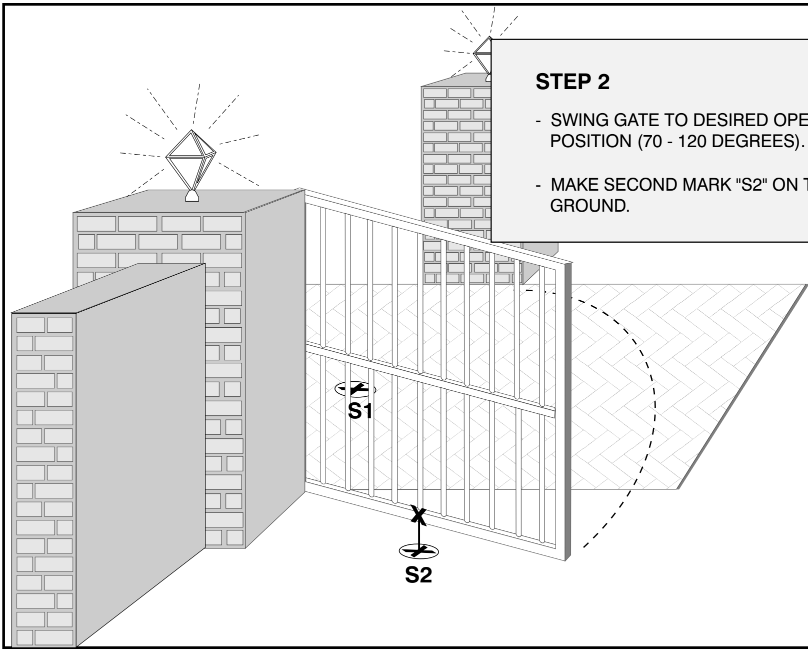
Mounting Control Box



Standard Pedestal Positioning *(Gate Inward Opening)*

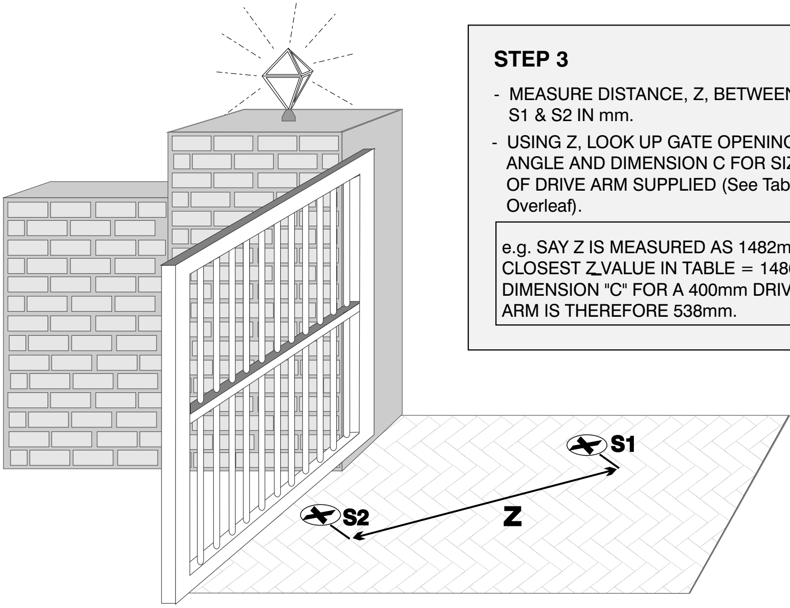
(See Page 14 for Wall Mount Pedestals)





STEP 2

- SWING GATE TO DESIRED OPEN POSITION (70 - 120 DEGREES).
- MAKE SECOND MARK "S2" ON THE GROUND.



STEP 3

- MEASURE DISTANCE, Z, BETWEEN S1 & S2 IN mm.
- USING Z, LOOK UP GATE OPENING ANGLE AND DIMENSION C FOR SIZE OF DRIVE ARM SUPPLIED (See Table Overleaf).

e.g. SAY Z IS MEASURED AS 1482mm
CLOSEST Z VALUE IN TABLE = 1486mm
DIMENSION "C" FOR A 400mm DRIVE ARM IS THEREFORE 538mm.

Table 3 - Pedestal Positioning *(Gate Inward Opening)*

Z ✶ (IN mm)	GATE OPENING ANGLE	DIMENSION C FOR DRIVE ARMS:-		
		250mm LONG	400mm LONG	500mm LONG
(mm)	(Degrees)	(mm)	(mm)	(mm)
1147	70.0	436	697	872
1161	71.0	431	689	861
1176	72.0	425	681	851
1190	73.0	420	672	841
1204	74.0	415	665	831
1218	75.0	411	657	821
1231	76.0	406	650	812
1245	77.0	402	643	803
1259	78.0	397	636	795
1272	79.0	393	629	786
1286	80.0	389	622	778
1299	81.0	385	616	770
1312	82.0	381	610	762
1325	83.0	377	604	755
1338	84.0	374	598	747
1351	85.0	370	592	740
1364	86.0	367	587	733
1377	87.0	363	581	726
1389	88.0	360	576	720
1402	89.0	357	571	713
1414	90.0	354	566	707
1426	91.0	351	561	701
1439	92.0	348	556	695
1451	93.0	345	551	689
1463	94.0	342	547	684
1475	95.0	339	543	678
1486	96.0	336	538	673
1498	97.0	334	534	668
1509	98.0	331	530	663
1521	99.0	329	526	658
1532	100.0	326	522	653
1543	101.0	324	518	648
1554	102.0	322	515	643
1565	103.0	319	511	639
1576	104.0	317	508	635
1587	105.0	315	504	630
1597	106.0	313	501	626
1608	107.0	311	498	622
1618	108.0	309	494	618
1628	109.0	307	491	614
1638	110.0	305	488	610
1648	111.0	303	485	607
1658	112.0	302	482	603
1668	113.0	300	480	600
1677	114.0	298	477	596
1687	115.0	296	474	593
1696	116.0	295	472	590
1705	117.0	293	469	586
1714	118.0	292	467	583
1723	119.0	290	464	580
1732	120.0	289	462	577

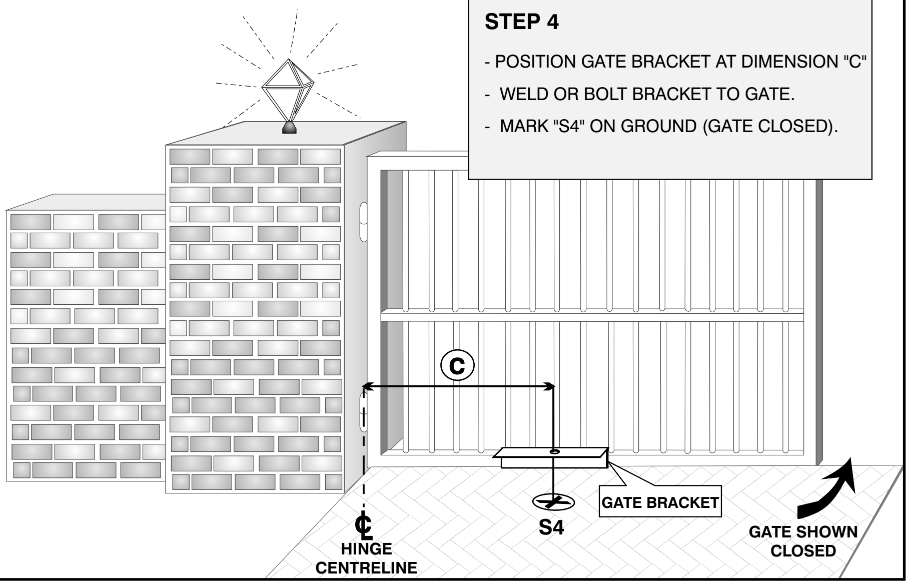
✶ **- SELECT VALUE OF Z IN TABLE CLOSEST TO THAT MEASURED**

DRIVE ARM LENGTH APPLICATION	250mm - Limited space or outward opening applications 400mm - Standard double Auto-Mate kits 500mm - Standard Maxi-Mate or single Auto-Mate kits

Positioning Gate Bracket

STEP 4

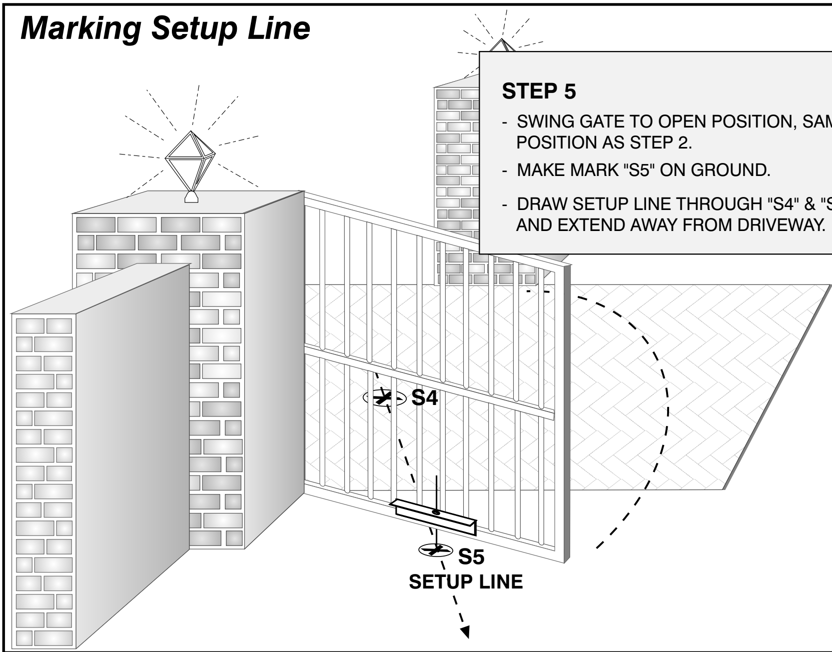
- POSITION GATE BRACKET AT DIMENSION "C"
- WELD OR BOLT BRACKET TO GATE.
- MARK "S4" ON GROUND (GATE CLOSED).



Marking Setup Line

STEP 5

- SWING GATE TO OPEN POSITION, SAME POSITION AS STEP 2.
- MAKE MARK "S5" ON GROUND.
- DRAW SETUP LINE THROUGH "S4" & "S5" AND EXTEND AWAY FROM DRIVEWAY.

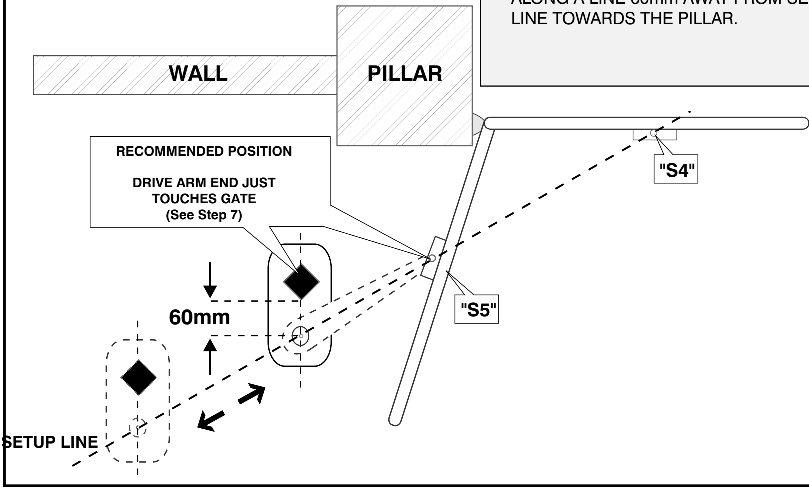


Locate position of pedestal

PLAN VIEW

STEP 6

- PEDESTALS CAN BE MOUNTED "ANYWHERE" ALONG A LINE 60mm AWAY FROM SETUP LINE TOWARDS THE PILLAR.

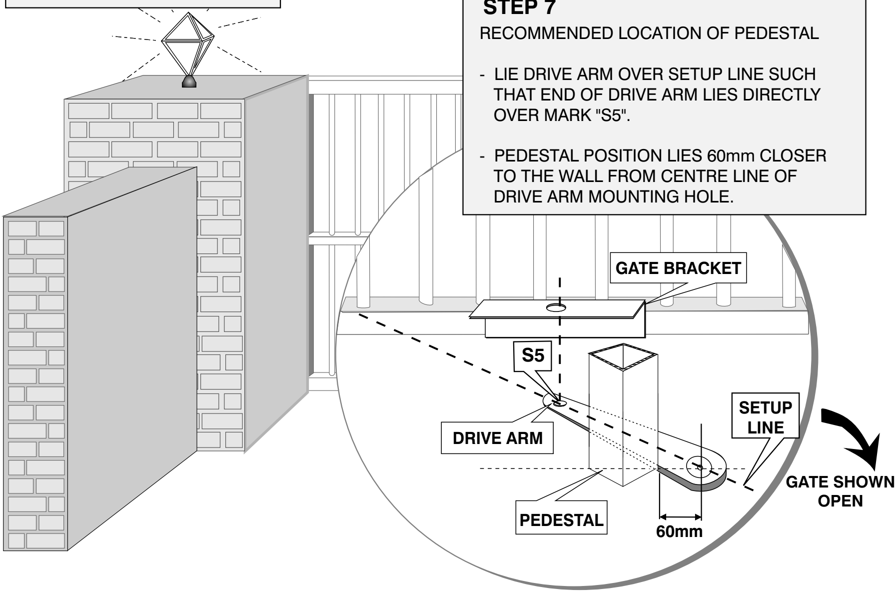


ISOMETRIC VIEW

STEP 7

RECOMMENDED LOCATION OF PEDESTAL

- LIE DRIVE ARM OVER SETUP LINE SUCH THAT END OF DRIVE ARM LIES DIRECTLY OVER MARK "S5".
- PEDESTAL POSITION LIES 60mm CLOSER TO THE WALL FROM CENTRE LINE OF DRIVE ARM MOUNTING HOLE.



NOTE: **THIS SHOWS AN ALTERNATIVE POSITION OF THE PEDESTAL IF SPACE IS LIMITED.**

LIMITED SPACE

PLAN VIEW OF GEARBOX & PEDESTAL POSITIONING

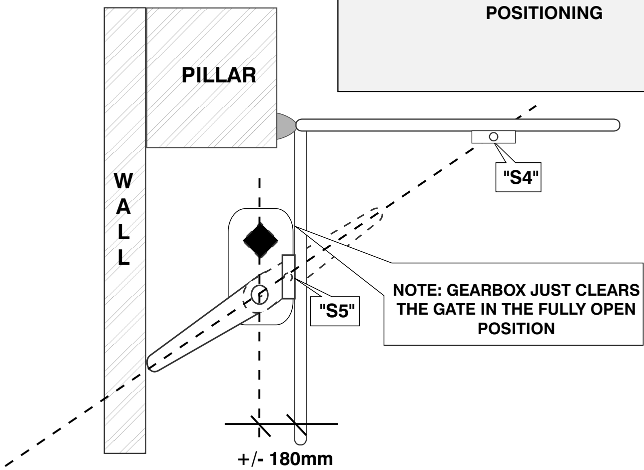


Figure 1

NOTE: **ALTERNATIVE POSITION WHEN THERE IS ABSOLUTE MINIMUM SPACE BETWEEN WALL AND GATE IN OPEN POSITION.**

ABSOLUTE LIMIT (NOT RECOMMENDED)

PLAN VIEW OF GEARBOX & PEDESTAL POSITIONING (CONSULT CENTURION)

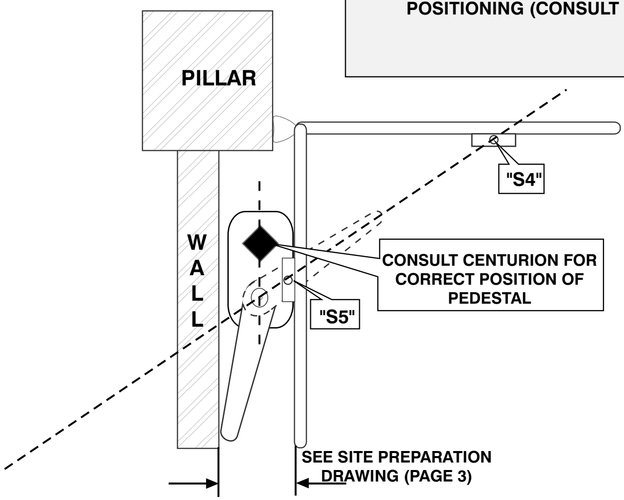
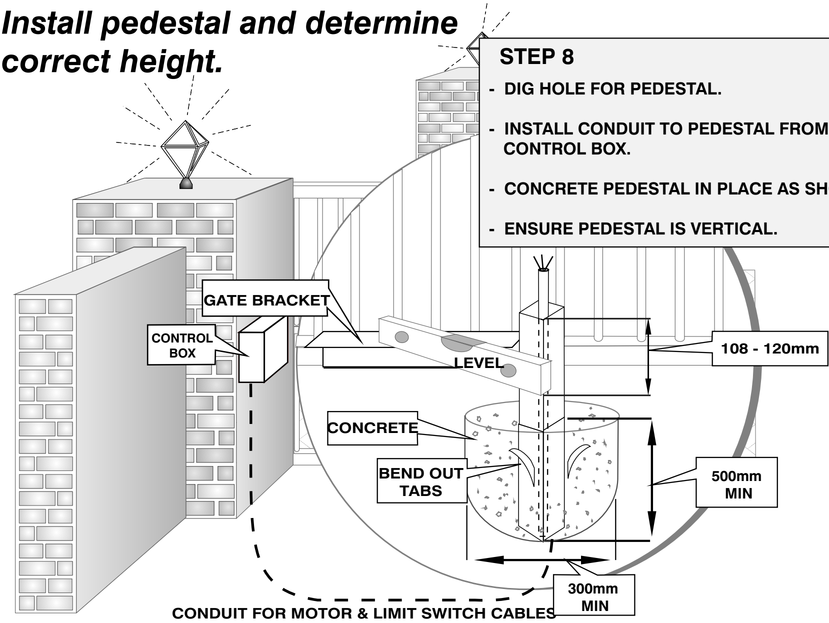


Figure 2

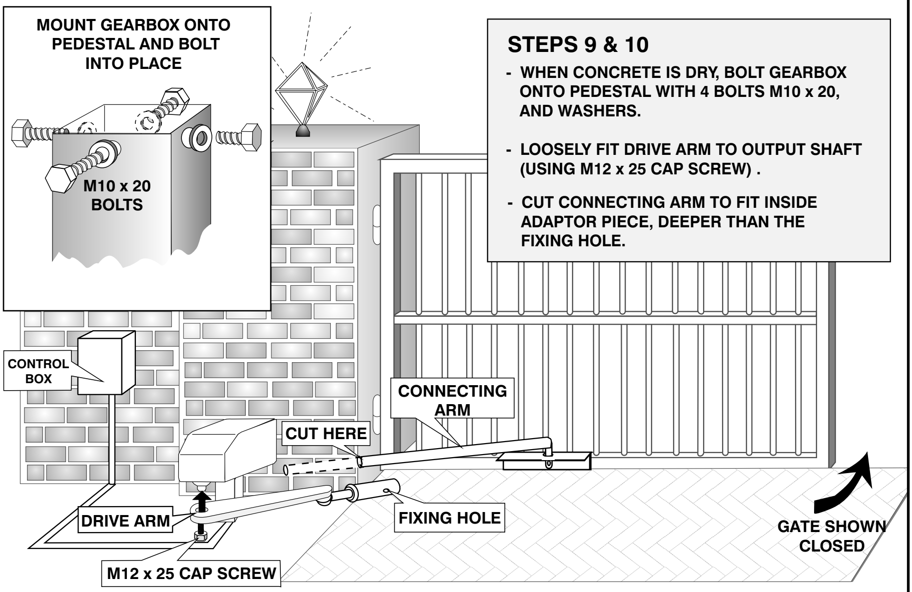
Install pedestal and determine correct height.



STEP 8

- DIG HOLE FOR PEDESTAL.
- INSTALL CONDUIT TO PEDESTAL FROM CONTROL BOX.
- CONCRETE PEDESTAL IN PLACE AS SHOWN.
- ENSURE PEDESTAL IS VERTICAL.

Mount gearbox and connecting hardware

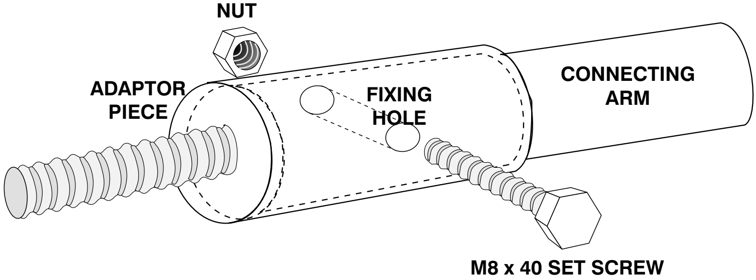


STEPS 9 & 10

- WHEN CONCRETE IS DRY, BOLT GEARBOX ONTO PEDESTAL WITH 4 BOLTS M10 x 20, AND WASHERS.
- LOOSELY FIT DRIVE ARM TO OUTPUT SHAFT (USING M12 x 25 CAP SCREW) .
- CUT CONNECTING ARM TO FIT INSIDE ADAPTOR PIECE, DEEPER THAN THE FIXING HOLE.

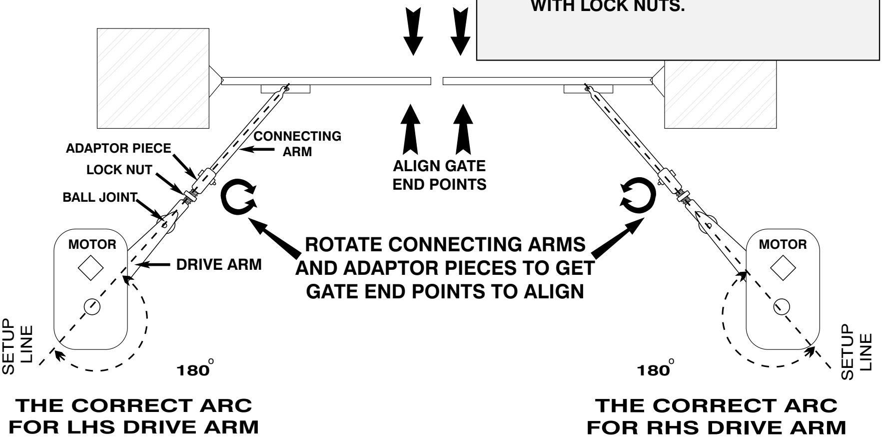
STEP 11

- DRILL FIXING HOLE HORIZONTALLY THROUGH CONNECTING ARM (8,5mm).
- FIT BOLT AND NUT.

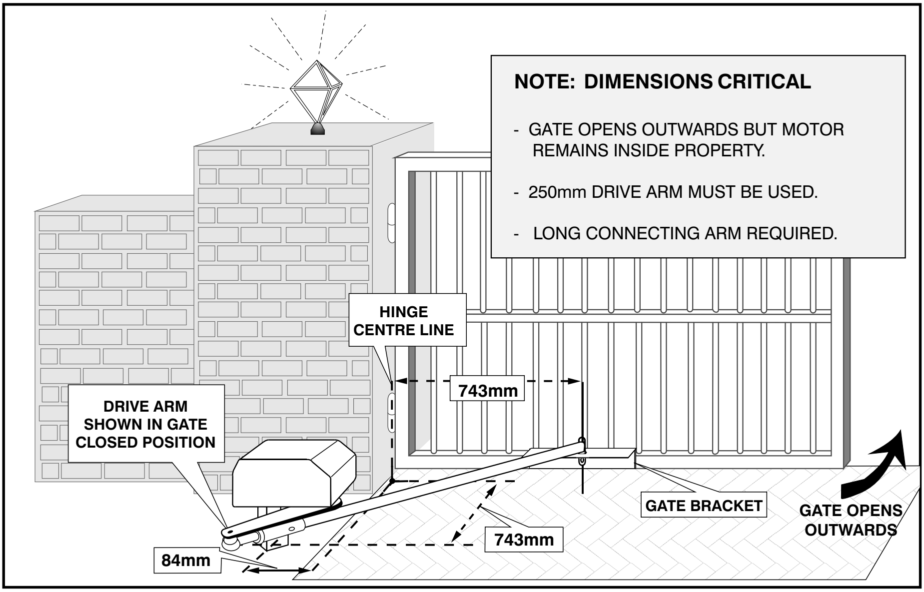


STEP 12

- ALIGN GATE END POINTS.
- LOCK ADAPTOR PIECE TO BALL JOINT WITH LOCK NUTS.

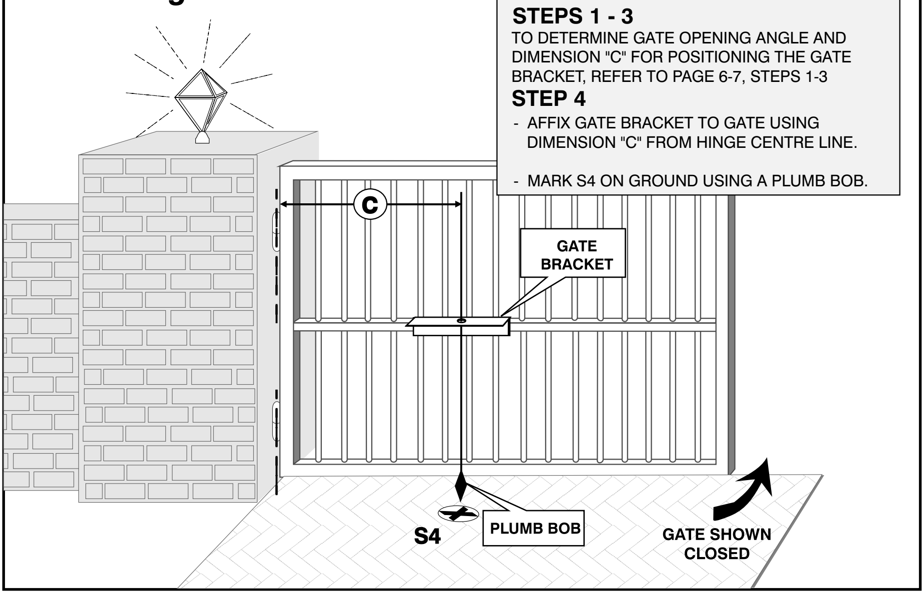


Outward Swing, Pedestal Positioning

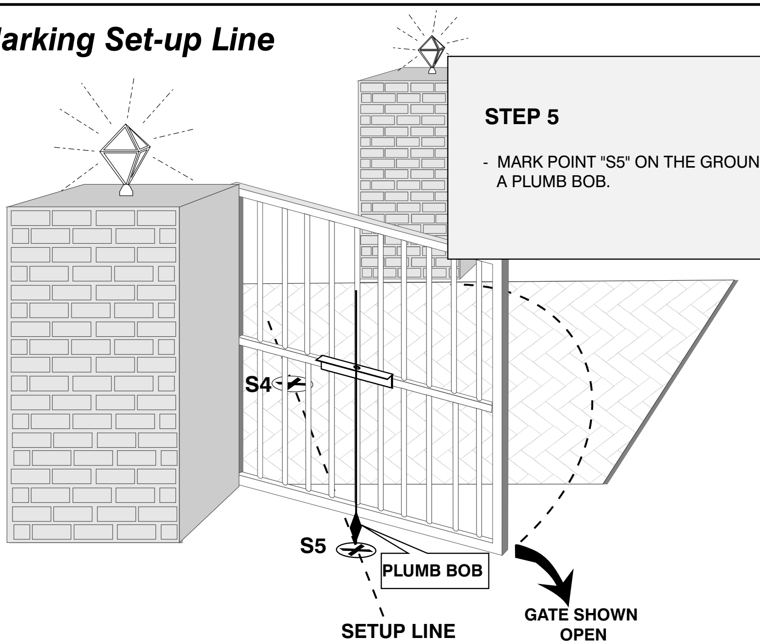


Wall Mount Pedestals *(Gate Inward Opening)*

Positioning Gate Bracket



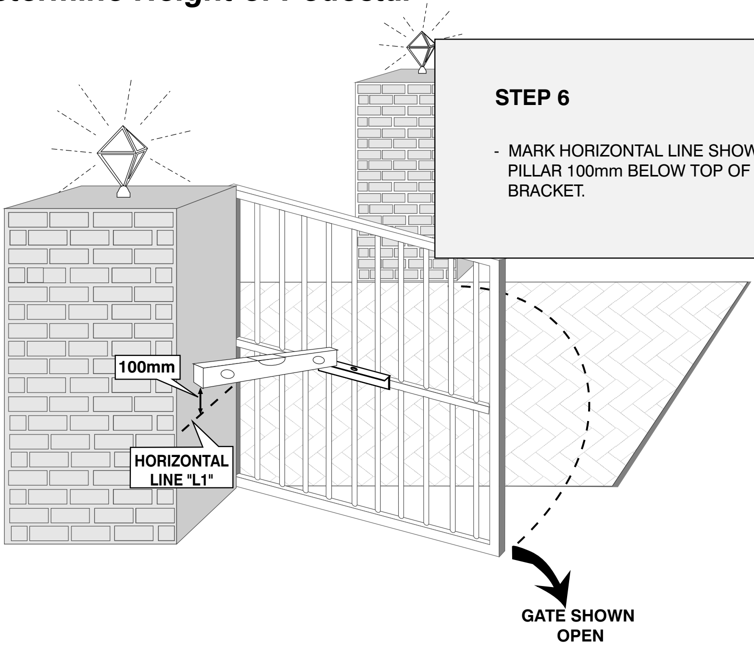
Marking Set-up Line



STEP 5

- MARK POINT "S5" ON THE GROUND USING A PLUMB BOB.

Determine Height of Pedestal



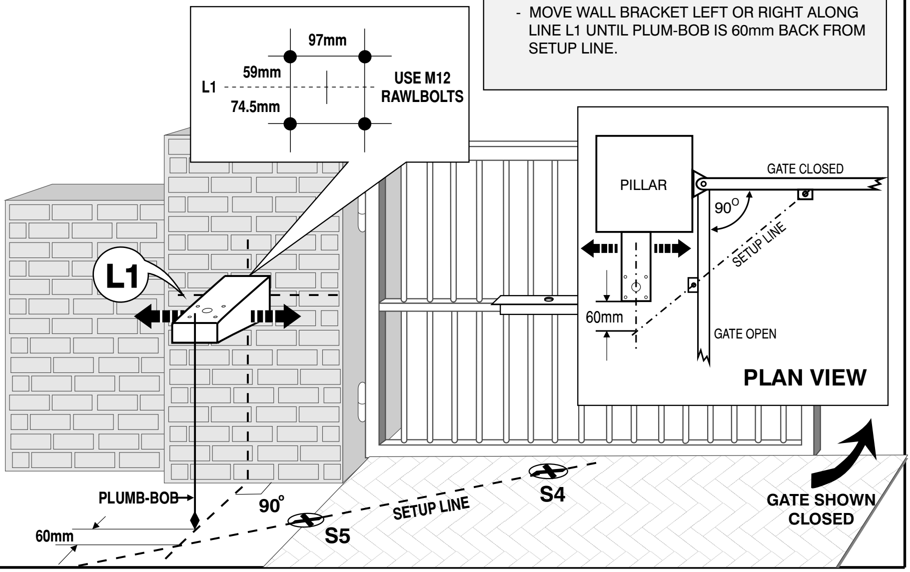
STEP 6

- MARK HORIZONTAL LINE SHOWN ON PILLAR 100mm BELOW TOP OF GATE BRACKET.

Locate Pedestal

STEP 7

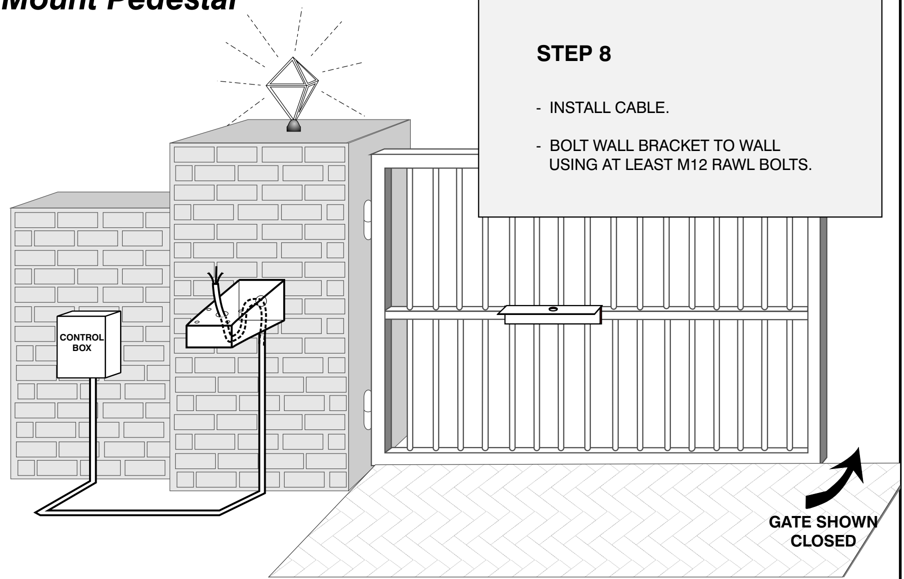
- MOVE WALL BRACKET LEFT OR RIGHT ALONG LINE L1 UNTIL PLUM-BOB IS 60mm BACK FROM SETUP LINE.

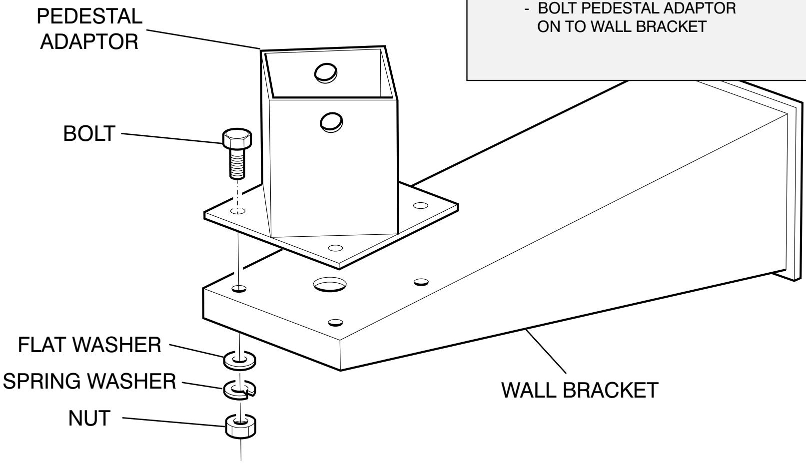


Mount Pedestal

STEP 8

- INSTALL CABLE.
- BOLT WALL BRACKET TO WALL USING AT LEAST M12 RAWL BOLTS.

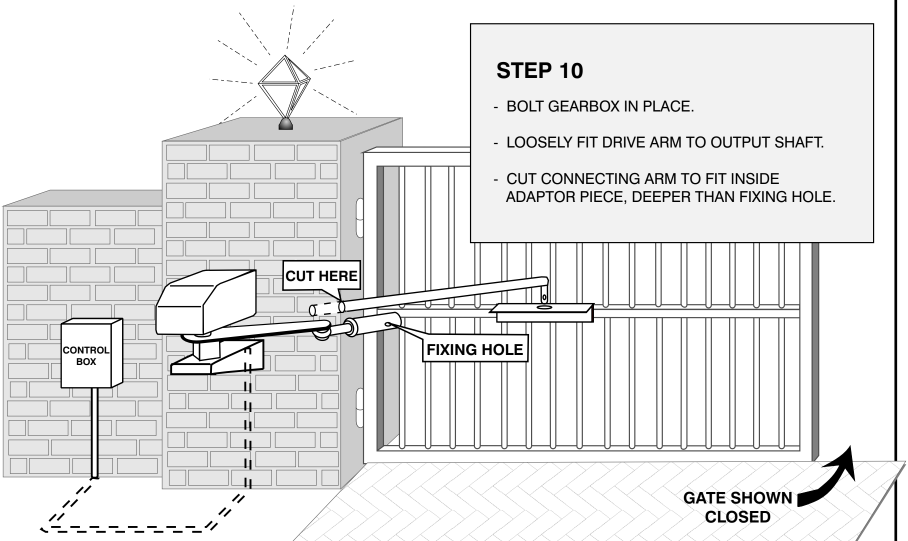




STEP 9

- BOLT PEDESTAL ADAPTOR ON TO WALL BRACKET

Mount Gearbox and Connecting Hardware



STEP 10

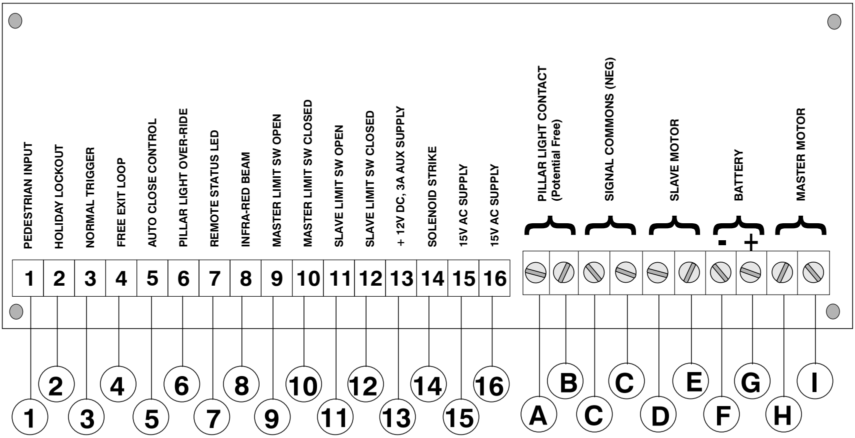
- BOLT GEARBOX IN PLACE.
- LOOSELY FIT DRIVE ARM TO OUTPUT SHAFT.
- CUT CONNECTING ARM TO FIT INSIDE ADAPTOR PIECE, DEEPER THAN FIXING HOLE.

FOR STEPS 11 - 12 REFER TO "STANDARD PEDESTAL POSITIONING" ON PAGE 13.

N.B.
Two controllers are available. Select the correct controller drawing from those shown below:

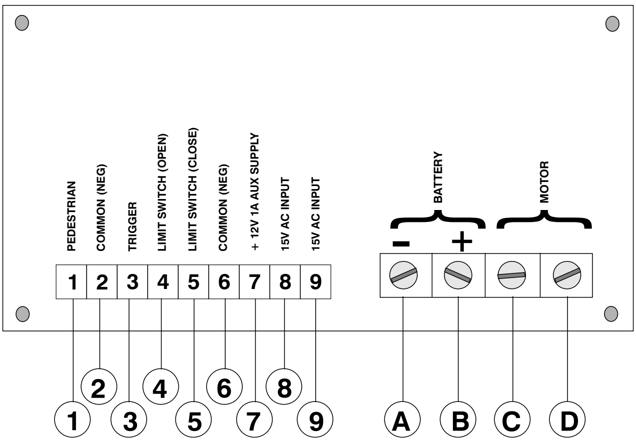
CP77 CONTROLLER - DOUBLE/SINGLE SWING CONTROLLER WITH MULTIPLE FEATURES

CP77 CONTROL CARD



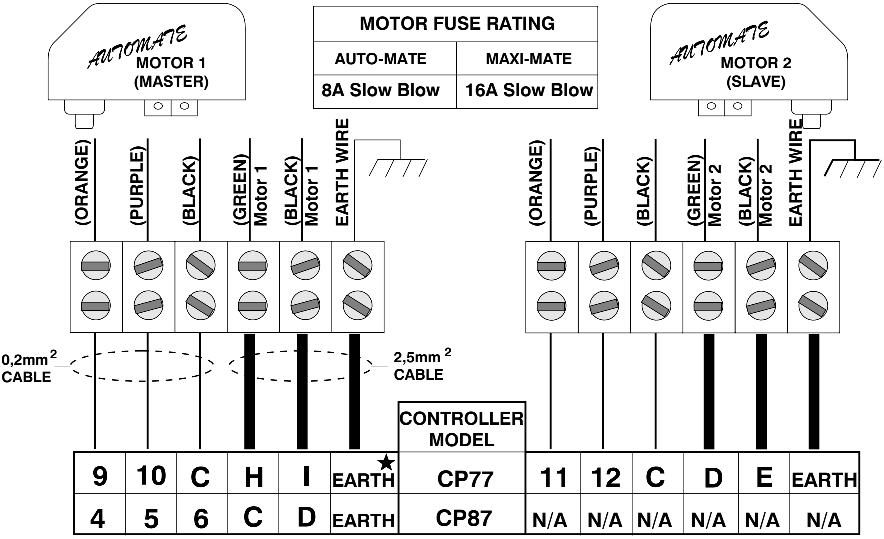
CP87 CONTROLLER - SINGLE MOTOR CONTROLLER WITH BASIC FEATURES

CP87 CONTROL CARD



MOTOR AND LIMIT SWITCH CONNECTIONS

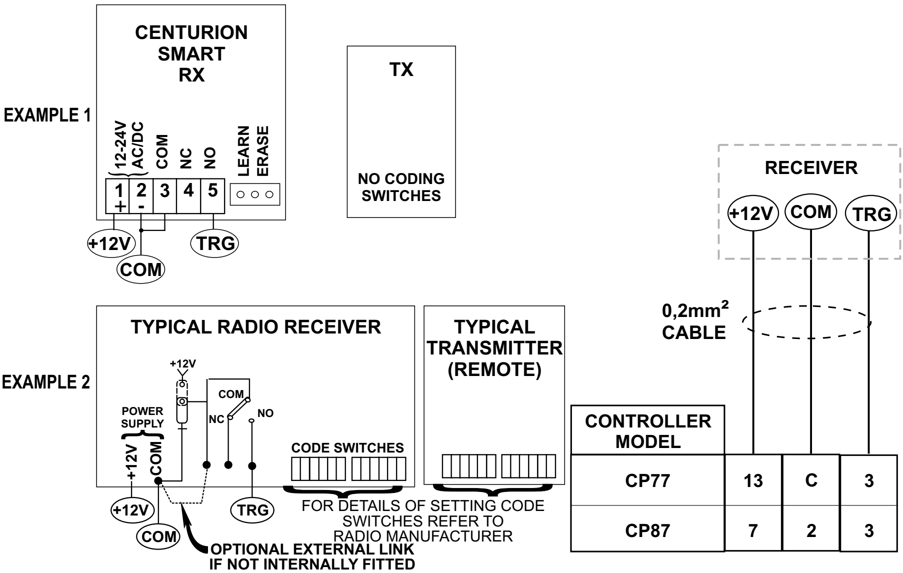
MOTOR FUSE RATING	
AUTO-MATE	MAXI-MATE
8A Slow Blow	16A Slow Blow



						CONTROLLER MODEL						
9	10	C	H	I	EARTH ★	CP77	11	12	C	D	E	EARTH
4	5	6	C	D	EARTH	CP87	N/A	N/A	N/A	N/A	N/A	N/A

★ *FOR EARTHING DETAILS REFER TO PAGE 26.*

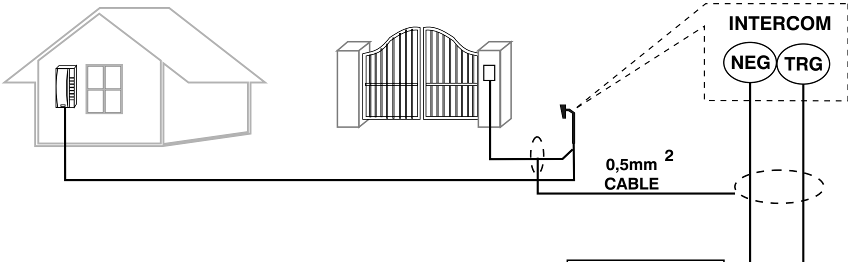
RADIO CONNECTIONS - *(REFER TO CENTURION FOR CODING DETAILS)*



CONTROLLER MODEL	+12V	COM	TRG
CP77	13	C	3
CP87	7	2	3

INTERCOM CONNECTIONS

NOTE:
- Many different intercom types are available.
- Only signals necessary to interface intercom to Centurion's controller are shown.
- Consult intercom manufacturer for full wiring diagrams.



CONTROLLER MODEL		
CP77	C	3
CP87	2	3

SOLENOID LOCK/MAGNETIC LOCK

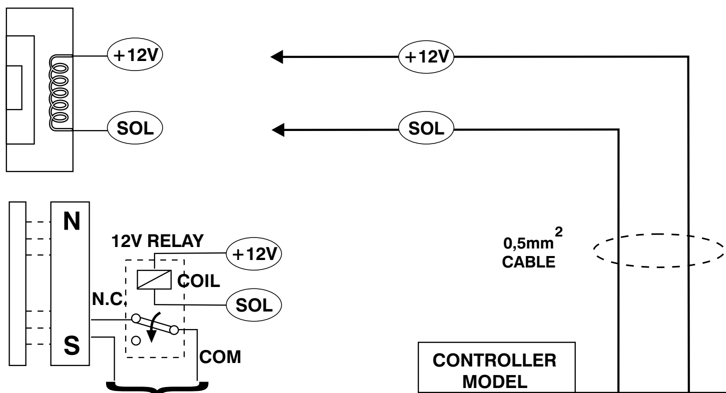
OPTION 1

SOLENOID LOCK

OR

OPTION 2

MAGNETIC LOCK



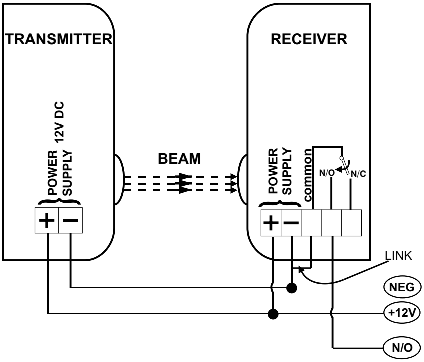
MAGNET SUPPLY
(Could be +12V from gate motor battery
depending on type of magnetic lock used)

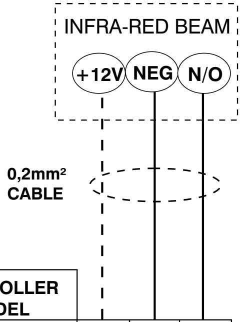
CONTROLLER MODEL		
CP77	14	13
CP87	N/A	N/A

NOTE: SOLENOID LOCK, OR MAGNET, IS USED TYPICALLY ON SINGLE SWING GATES

INFRA-RED BEAMS

**NOTE - TYPICAL SAFETY BEAM IS SHOWN.
REFER TO MANUFACTURER FOR DETAILS**

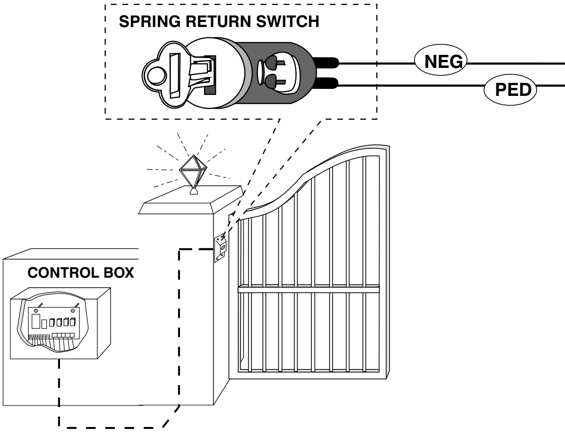


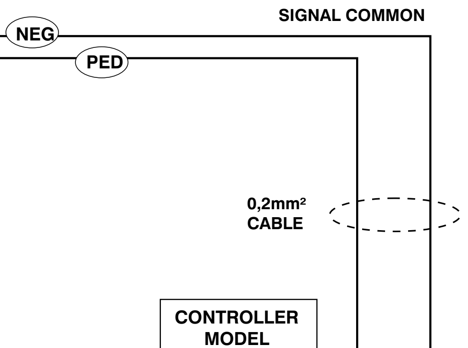


NOTE - THE INFRA-RED BEAM INPUT ONTO THE STANDARD CP77 IS NORMALLY *OPEN*

CONTROLLER MODEL			
CP77	13	C	8
CP87	N/A	N/A	N/A

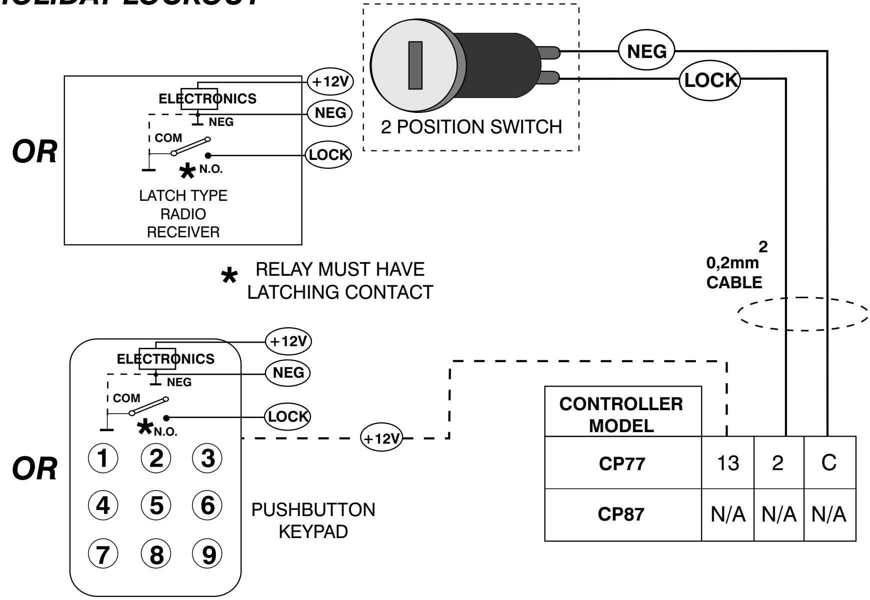
PEDESTRIAN KEYSWITCH





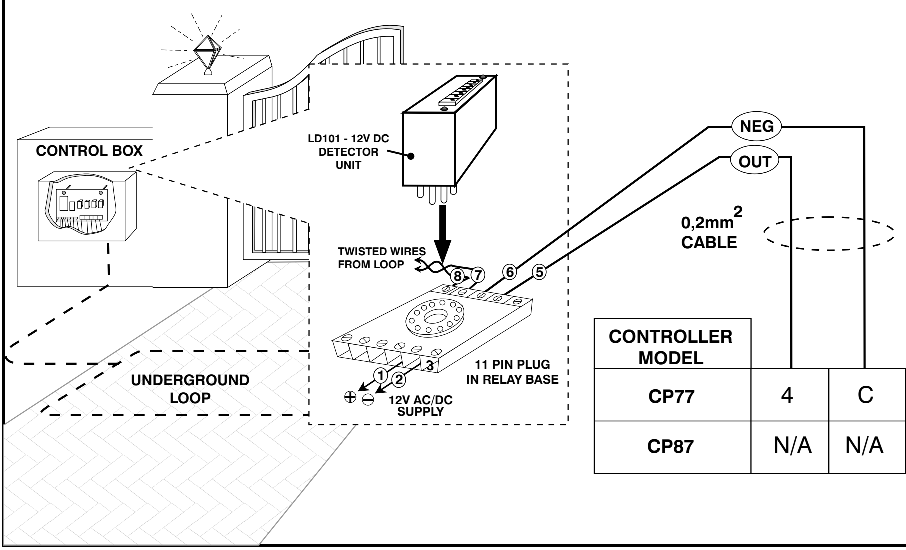
CONTROLLER MODEL		
CP77	1	C
CP87	1	2

HOLIDAY LOCKOUT



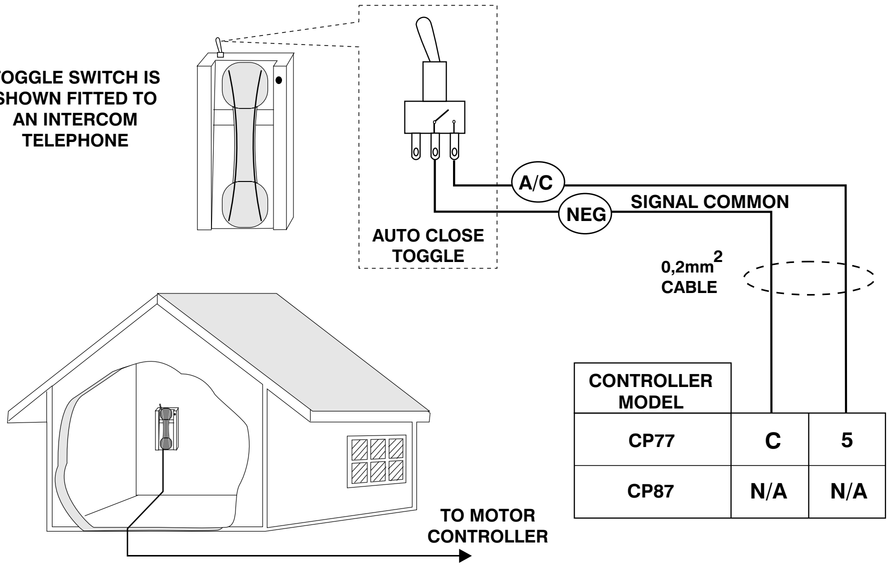
CONTROLLER MODEL			
CP77	13	2	C
CP87	N/A	N/A	N/A

FREE EXIT LOOP - *PROCON LD100 INDUCTIVE LOOP DETECTOR IS SHOWN BELOW. MODIFY WIRING IF OTHER MAKES OF DETECTORS ARE USED.*

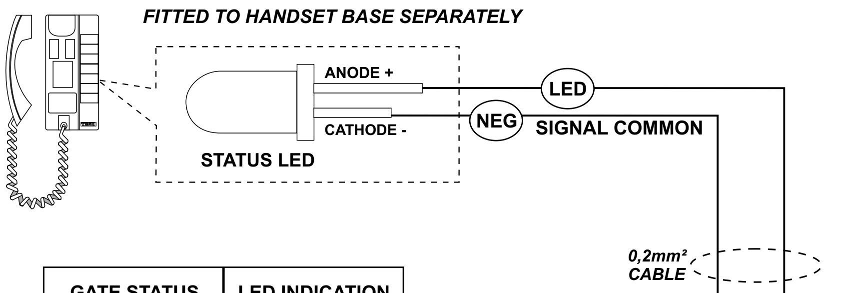


CONTROLLER MODEL		
CP77	4	C
CP87	N/A	N/A

REMOTE AUTOCLOSE SWITCH



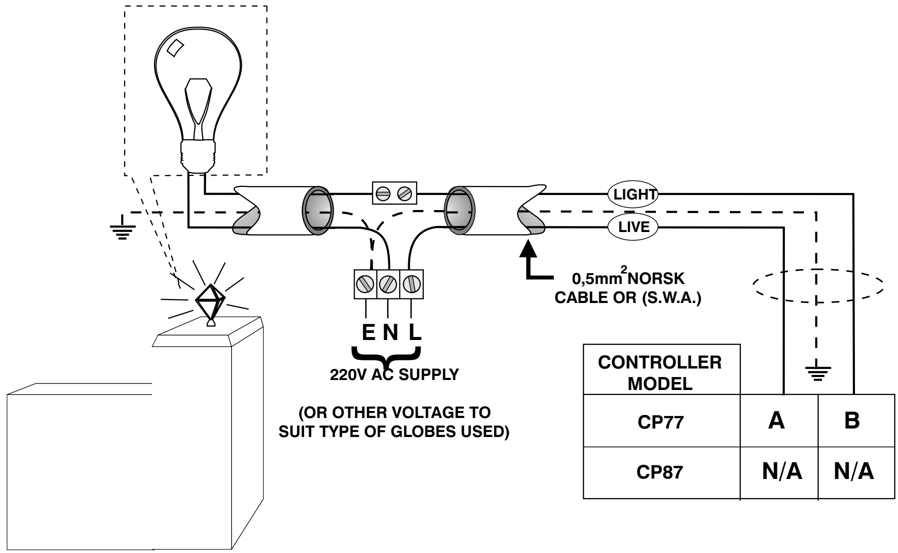
CONTROLLER MODEL		
CP77	C	5
CP87	N/A	N/A



GATE STATUS	LED INDICATION
MAINS LOSS	2 FLASHES / 2 sec
BATTERY LOW	3 FLASHES / 2 sec
COLLISION DETECTION	4 FLASHES / 2 sec
GATE CLOSED	OFF
GATE OPEN	ON
GATE OPENING	SLOW EVEN FLASH
GATE CLOSING	FAST EVEN FLASH

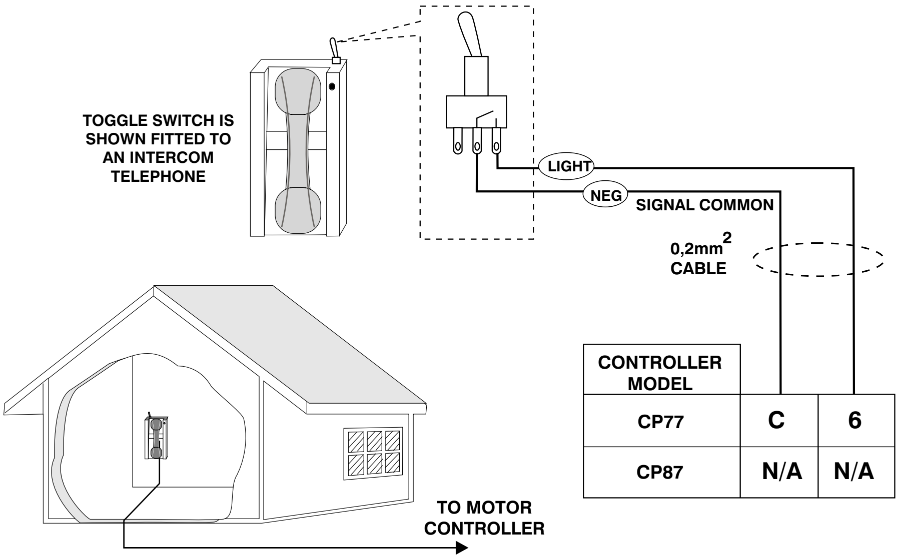
CONTROLLER MODEL		
CP77	C	7
CP87	N/A	N/A

PILLAR LIGHT(S)



CONTROLLER MODEL		
CP77	A	B
CP87	N/A	N/A

REMOTE PILLAR LIGHT CONTROL

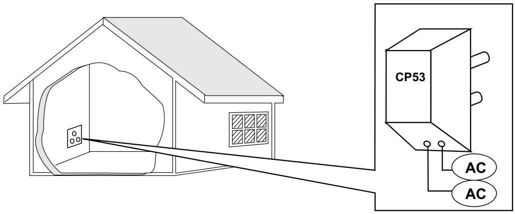


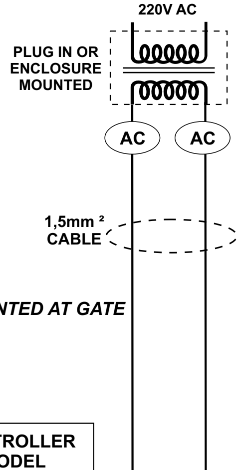
CONTROLLER MODEL		
CP77	C	6
CP87	N/A	N/A

Electrical Connections cont'd.....

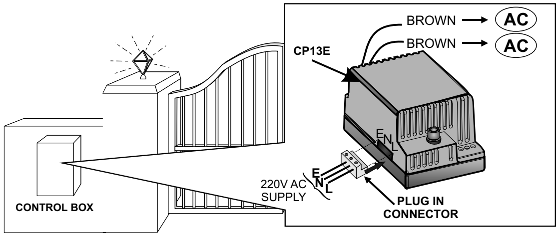
BATTERY CHARGER TRANSFORMER SUPPLY

OPTION 1 PLUG IN TRANSFORMER IN HOUSE



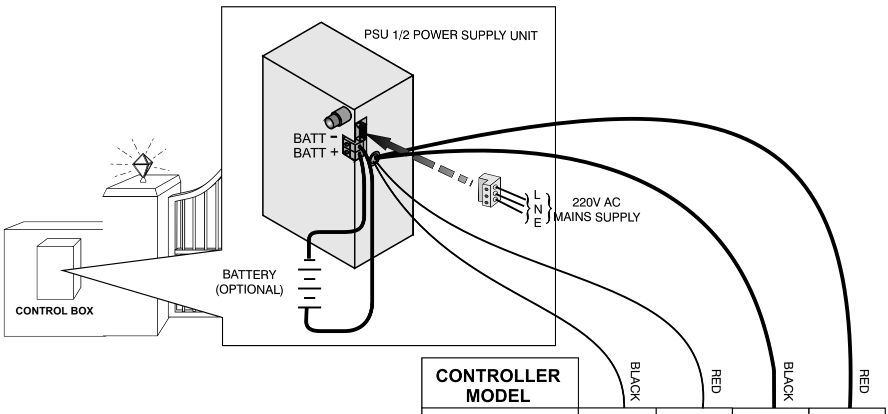


OPTION 2 ENCLOSURE MOUNTED CHARGER TRANSFORMER MOUNTED AT GATE



CONTROLLER MODEL		
CP77	15	16
CP87	8	9

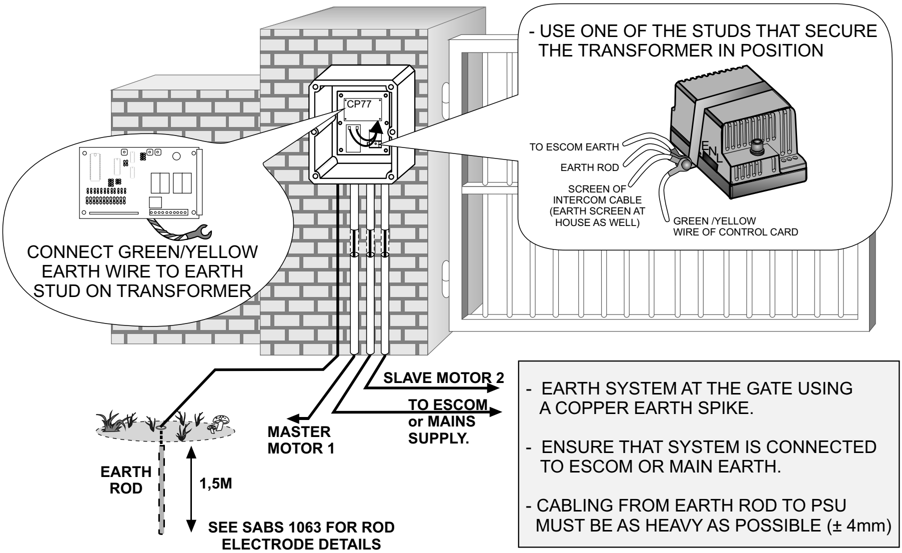
PSU 1/2 POWER SUPPLY



CONTROLLER MODEL				
CP77PSU	15	16	F	G
CP87	N/A	N/A	N/A	N/A

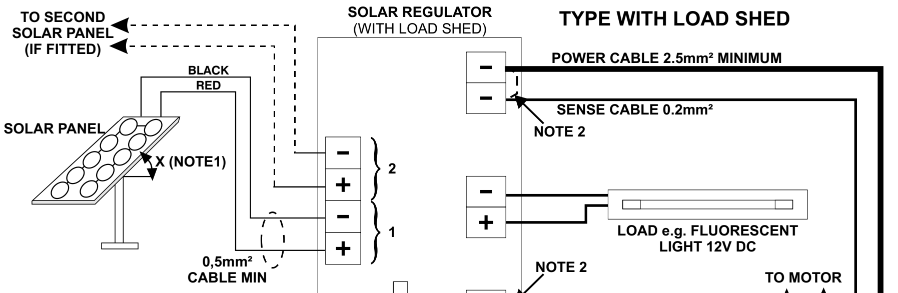
NOTE: CP77 CONTROLLER CARD MUST BE MODIFIED FOR PSU SUPPLY, REFERENCE CP77PSU

RECOMMENDED EARTHING FOR LIGHTNING PROTECTION



- EARTH SYSTEM AT THE GATE USING A COPPER EARTH SPIKE.
- ENSURE THAT SYSTEM IS CONNECTED TO ESCOM OR MAIN EARTH.
- CABLING FROM EARTH ROD TO PSU MUST BE AS HEAVY AS POSSIBLE (± 4mm)

SOLAR PANEL

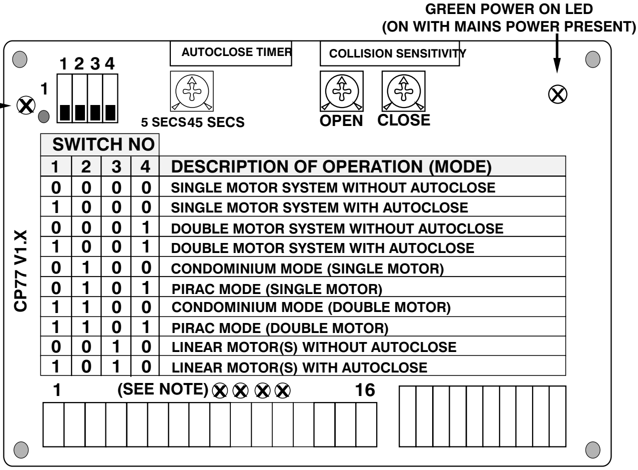


ANGLE, X °	LOCATION
30°	JOHANNESBURG
40°	PE & EAST LONDON
45°	CAPE TOWN

NOTE:
1. TO PREVENT THE STATUS LED ON THE CP77 CONTROLLER FROM INDICATING "MAINS FAILURE", IT IS NECESSARY TO CONNECT TERMINAL 13 TO TERMINAL 15.
2. CONNECT MOTOR DIRECTLY TO BATTERY (UNLESS LOAD SHED FUSE IS SUITABLY RATED)

CONTROL CARD SETUP

CP77



SWITCH NO				
1	2	3	4	DESCRIPTION OF OPERATION (MODE)
0	0	0	0	SINGLE MOTOR SYSTEM WITHOUT AUTOCLOSE
1	0	0	0	SINGLE MOTOR SYSTEM WITH AUTOCLOSE
0	0	0	1	DOUBLE MOTOR SYSTEM WITHOUT AUTOCLOSE
1	0	0	1	DOUBLE MOTOR SYSTEM WITH AUTOCLOSE
0	1	0	0	CONDOMINIUM MODE (SINGLE MOTOR)
0	1	0	1	PIRAC MODE (SINGLE MOTOR)
1	1	0	0	CONDOMINIUM MODE (DOUBLE MOTOR)
1	1	0	1	PIRAC MODE (DOUBLE MOTOR)
0	0	1	0	LINEAR MOTOR(S) WITHOUT AUTOCLOSE
1	0	1	0	LINEAR MOTOR(S) WITH AUTOCLOSE

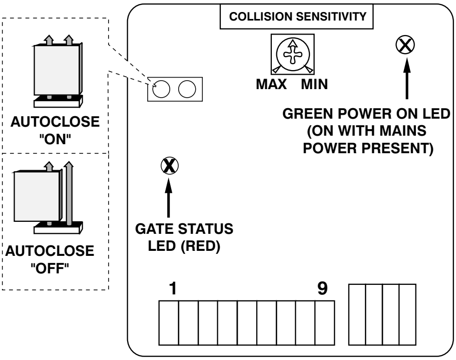
NOTE: LIMIT SWITCH LEDS ONLY ON VERSION 1.1 CARDS AND ABOVE

CP77 AND CP87

LED	GATE STATUS
LED OFF	GATE CLOSED
LED ON	GATE OPEN
FAST FLASH	CLOSING
SLOW FLASH	OPENING
★ 2 FLASH/2 SECS	MAINS FAILURE
3 FLASH/2 SECS	BATTERY LOW

★ NOTE: MAINS FAILURE DOES NOT APPLY TO CP87 CONTROL CARD.

CP87



COMMISSIONING INSTRUCTIONS

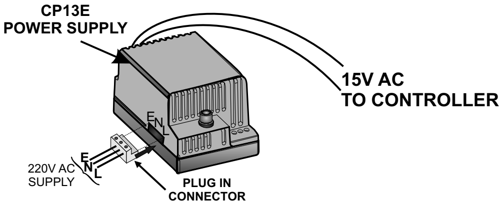
- IDENTIFY STATUS LED WHICH WILL GIVE INFORMATION ON GATE STATUS (e.g. WHETHER GATE SHOULD BE OPEN OR CLOSED).
- SELECT DIP SWITCH SETTINGS TO GIVE REQUIRED MODE OF OPERATION (CP77 ONLY).
- SELECT "AUTOCLOSE" IF REQUIRED (e.g. USING SW1 ON CP77, JUMPER ON CP87).
- SET AUTOCLOSE TIMER POTENTIOMETERS TO MINIMUM INITIALLY AND ADJUST TIME TO SUIT AFTER COMMISSIONING.
- SET COLLISION SENSITIVITY POTENTIOMETERS TO MID POSITION (SEE PAGE 32 FOR CORRECT FINAL ADJUSTMENT).

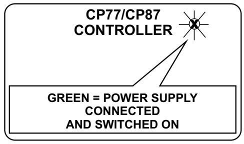
APPLYING MAINS POWER

OPTION 1 *220V AC SUPPLY TO GATE*

- APPLY 220V AC POWER
- CHECK POWER ON INDICATION

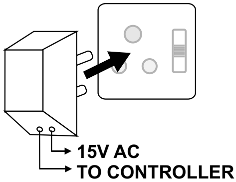
- APPLY 220V AC POWER
- CHECK POWER ON INDICATOR

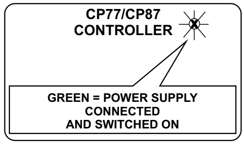




OPTION 2 LOW VOLTAGE SUPPLY TO GATE

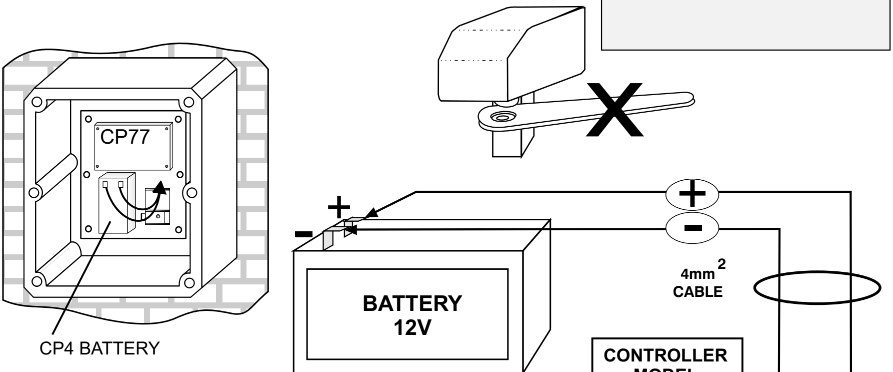
- PLUG IN TRANSFORMER AND SWITCH ON CIRCUIT
- CHECK POWER ON INDICATION





CONNECTING BATTERY

- LOOSEN OR REMOVE DRIVE ARMS
- CONNECT BATTERY



CONTROLLER MODEL		
CP77	F	G
CP87	A	B

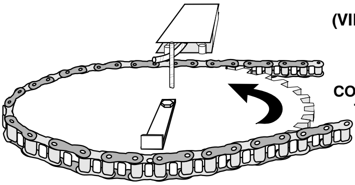
NOTE: IF A LARGE BATTERY IS USED, THE CABLES CONNECTING THE BATTERY TO THE CP80 CARD SHOULD BE BETWEEN 6 & 10 mm^2 FOR CABLE LENGTHS LESS THAN 5 METRES.

SET MOTOR AND LIMIT SWITCH POLARITY

- **TRIGGER CONTROL CARD**
- **MAKE SURE MOTOR DIRECTION(S) CORRESPOND(S) WITH STATUS LED. (COMPARE FIG 1 AND FIG 2 BELOW).**
- **SWOP MOTOR WIRES TO GIVE CORRECT MOTOR ROTATION (IF NECESSARY). (SEE FIG 3a BELOW).**
- **TEST THAT MOTOR STOPS WHEN IT HITS THE LIMIT SWITCH.**
- **SWOP LIMIT SWITCH WIRES IF MOTOR DOES NOT STOP ON LIMIT SWITCH (SEE FIG 3b BELOW).**

FIG 1

L.H.S. GATE MOTOR



(VIEWED FROM INSIDE THE PROPERTY)

ARROW SHOWS CORRECT DIRECTION(S) TO CLOSE GATE(S)

R.H.S. GATE MOTOR

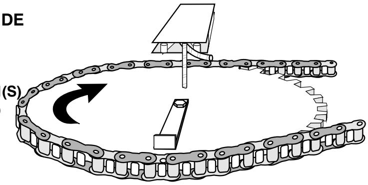


FIG 2

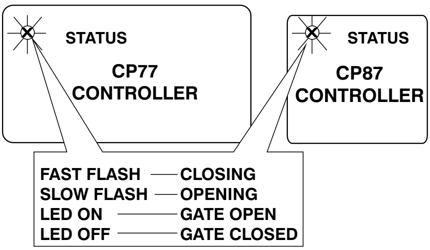


FIG 3a

CONNECTOR BLOCK IN MOTOR

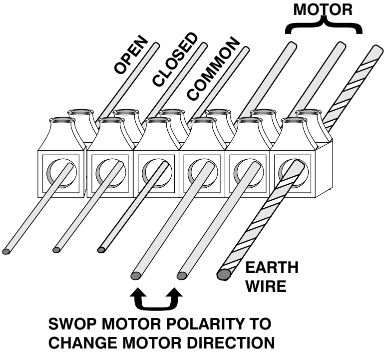
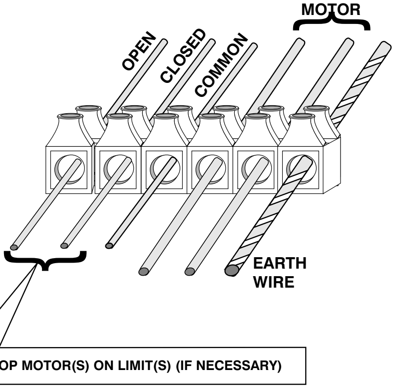


FIG 3b



LIMIT SWITCH ADJUSTMENT

- ARRANGE FOR FIXED PIN TO STOP MOTOR IN THE GATE "CLOSED" POSITION (SEE FIG 1 BELOW).
- IF ADJUSTABLE L/S STRIKER ARM CAUSES GATE TO STOP, THEN DISCONNECT L/S COMMON (SEE FIG 2 BELOW) AND ALLOW MOTOR TO DRIVE PAST LIMIT SWITCH SPRING.
- WHEN L/S STRIKER ARM IS CLEAR, RECONNECT WIRE.

NOTE: LHS MOTOR SHOWN

FIG 1

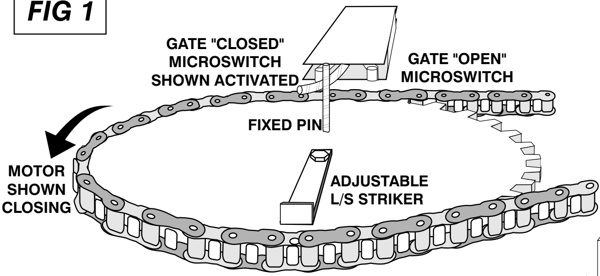
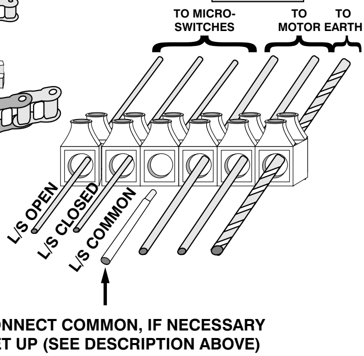
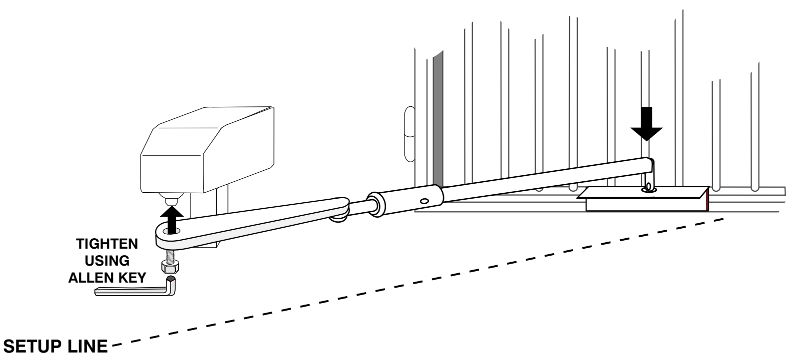


FIG 2

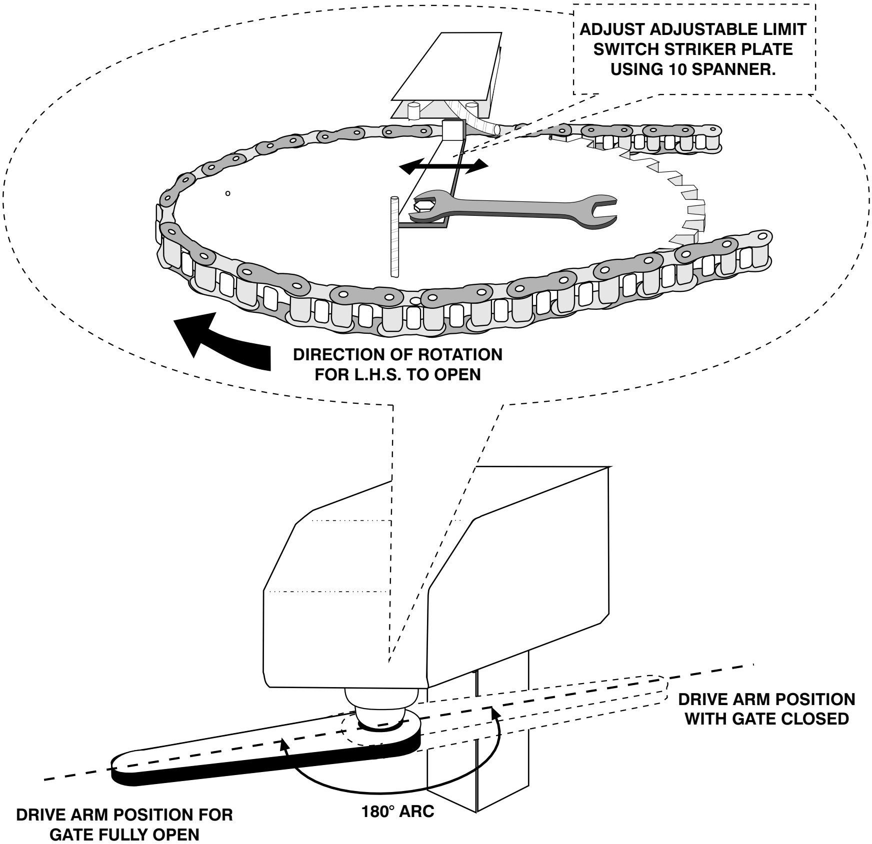


- WITH LIMIT SWITCHES SET FOR THE CORRECT "GATE CLOSED" POSITION, REFIT DRIVE ARM AND CONNECTING ARM ENSURING THAT THEY ARE IN A COMPLETELY STRAIGHT LINE.
- TIGHTEN DRIVE ARM SECURELY USING ALLEN KEY.
- DRIVE ARM, BALL JOINT AND CONNECTING ARM MUST LIE DIRECTLY OVER, AND IN LINE WITH, THE SETUP LINE.



- OPEN GATE AND ADJUST THE "ADJUSTABLE" LIMIT SWITCH STRIKER ARM SUCH THAT DRIVE ARM DESCRIBES 180 DEGREE ARC.

NOTE: L.H.S. MOTOR SHOWN



Collision Sensing Adjustment

- ADJUST SETTING(S) ON CONTROL CARD (SEE FIGURE 2) SUCH THAT GATE(S) WILL OPEN AND CLOSE RELIABILY, BUT NOT CAUSE DAMAGE TO PERSONS OR OBJECTS IN THE PATH OF THE GATE.
- NOTE DIFFERENCE DURING CLOSING (FIG 1) AND OPENING (FIG 3) DIRECTIONS.

FIG 1

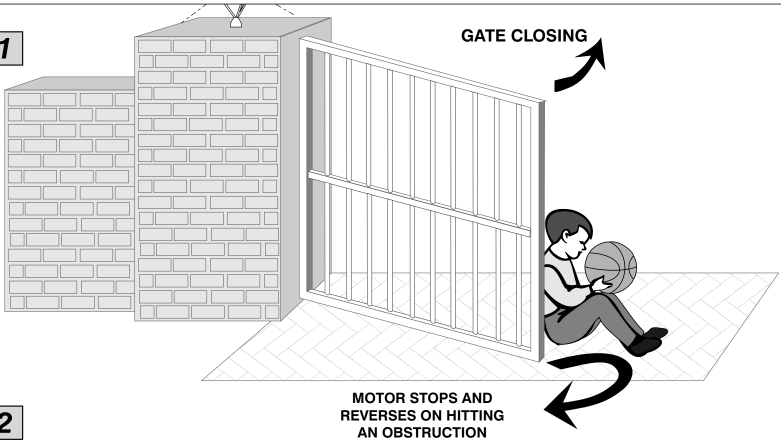


FIG 2

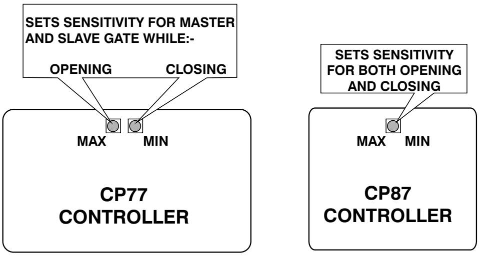
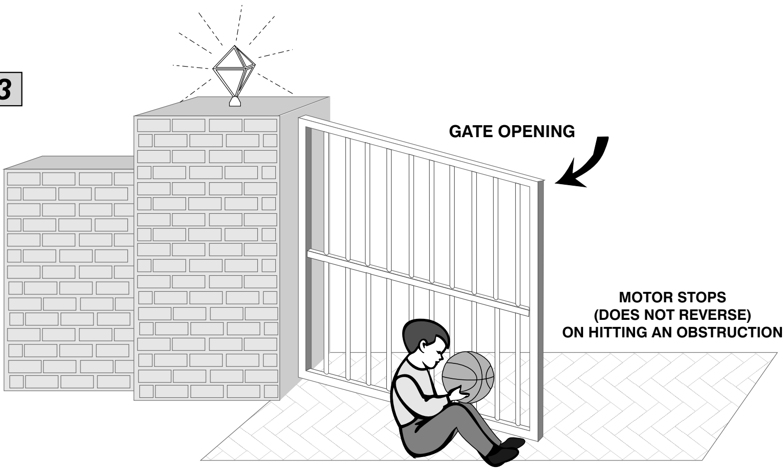


FIG 3



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